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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,373	10/24/2003	Yan Borodovsky	Intel 10559-882001/P17484	2788
20985	7590	09/26/2005	EXAMINER CHACKO DAVIS, DABORAH	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			ART UNIT 1756	PAPER NUMBER

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/693,373

Applicant(s)

BORODOVSKY, YAN

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10/24/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01.03.05.07.08/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-24, are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent Application Publication No. 2005/0074698 (Borodovsky).

Borodovsky, in the abstract, in [0020], [0024], [0025], [0027], [0042], [0048], discloses a system including an interference lithography apparatus that forms patterns of line of equal width and spaces (exposed to light, or radiation), a second lithography apparatus (optical or imprint or e-beam) that forms patterns of lines, wherein the pitch of the second lithography process (features formed in the second lithography apparatus) are significantly larger (at least 1.5 times) than the pitch of the features (line width and space width of the patterns) formed from the interference lithography process (claims 1, and 10-11, 14). Borodovsky, in [0043], discloses that the width of the features formed by the second apparatus is equal to the width of the feature formed by the interference lithography process (first lithography process) (claim 2). Borodovsky, in [0021], discloses that the second width of the feature (formed in the second lithography

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process) is less than that of the other feature (interference pattern feature) (claim 3). Borodovsky, in [0018], discloses the use of OPC on a mask (claim 4). Borodovsky, in [0024], discloses that the first interference lithographic apparatus uses a beam splitter (claim 5). Borodovsky, in [0036], discloses that the interference lithography apparatus may employ a diffraction grating (claim 6). Borodovsky, in [0042], discloses that the second apparatus may include a mask-based optical lithography tool or an electron beam lithographic tool (claims 7-8). Borodovsky, in [0047], [0053], discloses that the second lithography apparatus is a maskless lithography tool that includes a database (claim 9). Borodovsky, in [0032], discloses that the pitch of the interference pattern is about half wavelength (claim 12). Borodovsky, in [0032], discloses that the exposure mask is a Boolean difference between a desired final pattern layout and pattern formed from the interference pattern (claim 13). Borodovsky, in [0065], and [0066], discloses that an alignment sensor is used to align the second lithography process pattern to the first lithography process pattern (claim 15). Borodovsky, in [0067], [0068], [0069], discloses that the common control system controls the exposure process (radiation doses and DOF) of the first and second patterning system (claim 16). Borodovsky, in [0067], [0068], [0069], [0070], [0072], discloses that the first patterning system includes an interference exposure apparatus, and the second patterning system may be an optical lithography system, or an imprint system, or an e-beam projection system or a maskless module or an electron beam direct write module or an ion beam direct write module or an optical direct write module, wherein the second lithography system includes an illuminator, a stage that includes a wafer chuck, and a mask (claims 17-24).

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***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd



September 17, 2005.



**JOHN A. MCPHERSON  
PRIMARY EXAMINER**